



# 1/8 SCALE REPLICA RADIAL ENGINE

## ASSEMBLY AND FINISHING INSTRUCTIONS



The Top Flite Replica Radial Engine (hereafter referred to as *Radial*) is patterned after the Pratt & Whitney radial engines that powered numerous aircraft from the *Golden Age* of aviation. Modeled to fit the Top Flite P-47D Thunderbolt, this 1/8th scale Radial will fit any cowls with a frontal opening of 5-1/2" to 6-1/4". Not only does the Radial enhance scale appearance, but it also serves as an air-flow baffle for more efficient engine cooling.

### Top Flite Product Support:

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### WARNING

**Do not attempt to start your engine unless the radial has been modified to permit cooling airflow to the engine!** See text for more information.

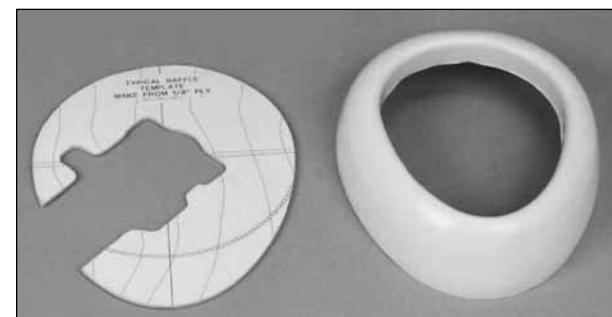
### TOOLS AND SUPPLIES NEEDED (Not Included)

Hobby Knife with # 11 Blade (HCAR0100)  
Hand Drill or Dremel® Moto-Tool®  
1/16" and 1/8" Drill Bits  
6-Minute Epoxy (Great Planes® Pro™, GPMR6042)  
CA+ (Great Planes® Pro™, GPMR6014)  
1/8" x 8" x 8" Lite-ply  
Round File or 1/2" Drum Sander  
Small Paint Brushes  
Paint (see painting instructions)  
Scroll or Coping Saw  
Rubber Cement or Spray Adhesive  
100 & 240-Grit Sandpaper

## ASSEMBLY

The following procedure covers the assembly and modifications required for a **flying model**. Static display models require no modification.

- 1. Measure the inside diameter of your cowl about 1-1/2" from the frontal opening and match this size to the concentric circles on the **Baffle Template**. *The correct size for the Top Flite P-47 is the innermost solid line on the template.*



- 2. Trace or photocopy the Baffle Template, then glue the copy to a sheet of 1/8" lite-ply (not included). Cut around the circumference and the engine opening with a scroll or coping saw.

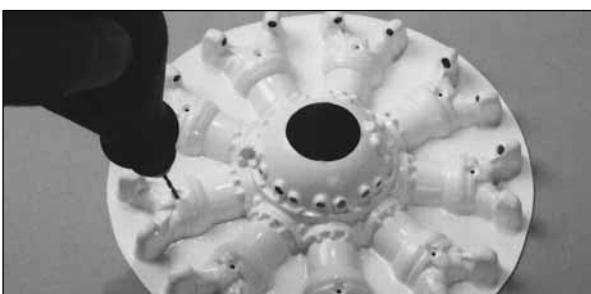
- 3. Trim the **Radial** to fit the lite-ply Baffle with a hobby knife or scissors.



- 4. Cut away the prop shaft opening from the center of the Radial. Smooth the edges with a round file or drum sander.

- 5. Tape the Radial to the baffle, then test fit the assembly inside the cowl. If necessary, sand the baffle and Radial for a better fit.

- 6. **Flight Modification** — Trim away one of the cylinders but leave excess backing material in place. This material will be trimmed off during final fitting of the engine.



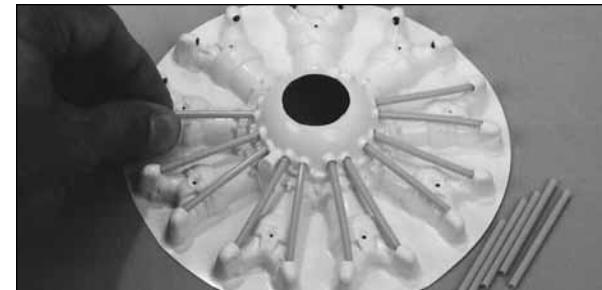
- 7. Drill a 1/8" hole through each of the *indented marks* around the perimeter of the crankcase and also through the bottom of each rocker arm cover. Drill a 1/16" hole through the *dimple* near the top of each cylinder.

- 8. Use 240-grit sandpaper to lightly sand the full length of the 5 **plastic tubes** for better glue and paint adhesion. Cut 18 pieces 2" long to use for the pushrod tubes.

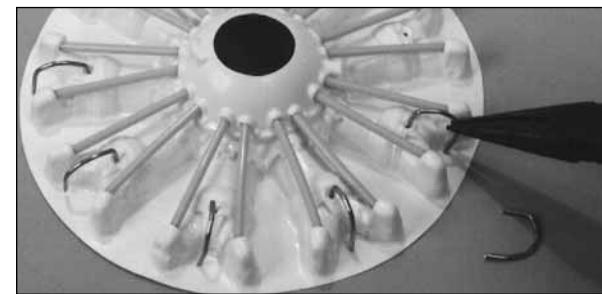
- 9. Sand the 16" **wire**, then cut 9 pieces 1-1/2" long to use for the ignition leads. Make a 90 degree bend 3/8" from one end.

**Note:** As you will probably be removing at least one cylinder when you use the Radial as an air baffle, you **need not** install pushrod tubes and an ignition lead in **one** cylinder. Complete all 9 cylinders if you will **only** be using the Radial for static display.

**Painting Hint:** Some modelers find that it's easier to paint this type of structure **before** final assembly. If this is your preference, skip down to the section on **Painting**. Then return to step 10 when you are ready to proceed.



- 10. Insert the pushrod tubes into the rocker arm covers and the crankcase as shown in the photo. They should protrude **inside** the Radial about 3/32" at each end of each piece. Don't worry about gluing them yet.



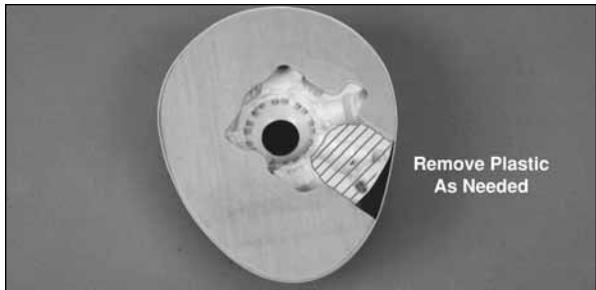
- 11. Insert the ignition leads into the cylinders.

**NOTE:** Bend the wires over the top of each cylinder so that they touch the backing. They will be installed in the baffle later.



- 12. Turn the Radial over and apply a drop of CA to both ends of all push rod tubes and ignition leads.

- 13. Glue the Radial to the ply baffle with 6-minute epoxy. Be sure to align the "removed cylinder" with the opening in the baffle. **Hint:** Roughen the back surface of the Radial with 100-grit sandpaper for a better bond.



14. Tape the Radial assembly inside the cowl. Make final adjustments to the fit between the cutouts and the engine. By working from the **inside** it's possible to remove material from the Radial without affecting the pushrod tubes and ignition leads. Pay special attention to provide **unrestricted throttle and needle valve movement**.

15. When satisfied with the fit, smooth all rough edges with fine sandpaper. Then paint the Radial (if not already done).

### PAINTING SUGGESTIONS

We painted our prototype Radial with Testors Model Enamel paint, then sprayed two light top-coats of satin finish epoxy over the finished job. This finish withstands fuel and normal wear and tear quite well.

If you are building a scale replica of a particular aircraft, paint the Radial in similar colors to the full scale version. The colors we chose represent typical P&W colors with *chrome plated* pushrod tubes.

### PAINTING SEQUENCE AND COLORS USED

#### Top Flite LustreKote™ (Aerosol)

1. Entire Exterior – Gray Primer

#### Testors Model Master Enamel (Brushed on)

2. Crankcase – Gunship Gray
3. Cylinders – Euro Gray
4. Background – Light Gray or Flat Black
5. Pushrod Tubes – Silver
6. Ignition Leads – Red
7. Rocker Arm Covers – Black
8. "Spark Plug" Connectors – Gold or Copper
9. Cylinder Fins and Weathering – Silver & Black Random Fine Lines On The Fins
10. Engine I.D. Plate – Black with Silver details
11. Epoxy Satin Finish Clear Coat (Test clear coat to make sure it is compatible with the Testors Enamel.)

PARTS LIST	
Qty.	Description
1	ABS Plastic Radial
5	8" Plastic Push Rod Tubes
1	16" Wire for Ignition Leads
1	Instruction Sheet
	Part No.
	RADIAL08
	PLTB025
	WIRES58
	RADIALP08

### Baffle Template

The cutout in this baffle is sized to fit a typical .60-size 2-stroke engine.

